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THE STATUS OF *PSEUDOGEEKKO SHEBAE* AND OBSERVATIONS ON THE GECKOS OF THE SOLOMON ISLANDS

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INTRODUCTION

Brown and Tanner (1949) referred a unique specimen (Brigham Young University [BYU], No. 7002) of a previously undescribed geckonid lizard from Guadalcanal in the Solomon Islands to the new species *shebae* in the genus *Pseudogekko* Taylor (1922), thus establishing the second species known for the genus and extending the range to include a second peripheral group of islands, analogous in position to the Philippines. At that time we had not had the opportunity of examining any material of the type species of the genus, the Philippine species *Pseudogekko compressicorpus*.

New material has now provided the opportunity to reassess the relationships of *P. shebae* and to redefine its differences from the other small geckos of the Solomon Islands. Dr. Ernest Williams, Museum of Comparative Zoology, recently called my attention to the difficulty of identifying certain specimens, which, on the basis of descriptions in the literature, were apparently referable either to *Lepidodactylus guppyi* or *Pseudogekko shebae*. The series of specimens in question (Museum of Comparative Zoology, Nos. 64152, 65862, 67122, 67124, 74517-19, and Stanford University, No. 23720) were collected by Mr. Fred Parker on Bougainville Island, Solomon Islands, during 1961-62. These have provided the point of departure for the present paper.

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THE RELATIONSHIPS OF THE GENUS *PSEUDOGEEKKO*

Taylor (1922, p. 103), in erecting the genus *Pseudogekko*, suggested that it might have its closest affinities with *Thecadactylus* (I assume *T. australis* = *Pseudothecadactylus australis*: Brongersma, 1936, p. 136). There is reason, however, to believe that the closeness of this relationship is doubtful. Recently, five specimens of *Pseudogekko compressicorpus* became available: Stanford University Nos. 23548-49, from Zamboanga, Mindanao Island, and 23654-55 from Bohol Island, and Museum of Comparative Zoology No. 44130, the latter collected by Taylor at Saub, Mindanao, and never previously reported. An examination of the foot structure of these specimens indicates probable close affinities with three other Oriental-Pacific genera (*Lepidodactylus*, *Gekko* and *Luperosaurus*), which also belong to the subfamily Gekkoninae as defined by Underwood (1954).

The six Oriental-Pacific genera, *Gekko*, *Hemiphyllodactylus*, *Lepidodactylus*, *Luperosaurus*, *Pseudogekko* and *Pseudothecadactylus*¹, all belong to that group with moderately to strongly dilated digits, with the distal joint relatively short, compressed, and arising from the tip or near the tip of the dilated part.

If digital structure alone is considered, these six genera fall into four sections. *Hemiphyllodactylus* is rather sharply distinguished by the greatly reduced first digit and the fact that the distal compressed phalanx is not attached all the way to the tip of the dilated portion, as pointed out by Stejneger (1899) and Smith (1933). *Pseudothecadactylus* forms a second section distinguished by the double series of lamellae which are widely separated distally. As they are presently understood, *Gekko* and *Luperosaurus* fall into a third section which may be distinguished from *Lepidodactylus* and *Pseudogekko* on the basis of the lamellae being entire throughout the length of the digit. In general the species of the genus *Gekko* are larger than are the species in the other genera, and the species of *Luperosaurus* exhibit more extensive webbing. However, a critical study of

¹ *Pseudothecadactylus* confined to the islands of Torres Straits and Australia is not properly Oriental-Pacific but is here considered because of Taylor's belief in its relationship to *Pseudogekko*.

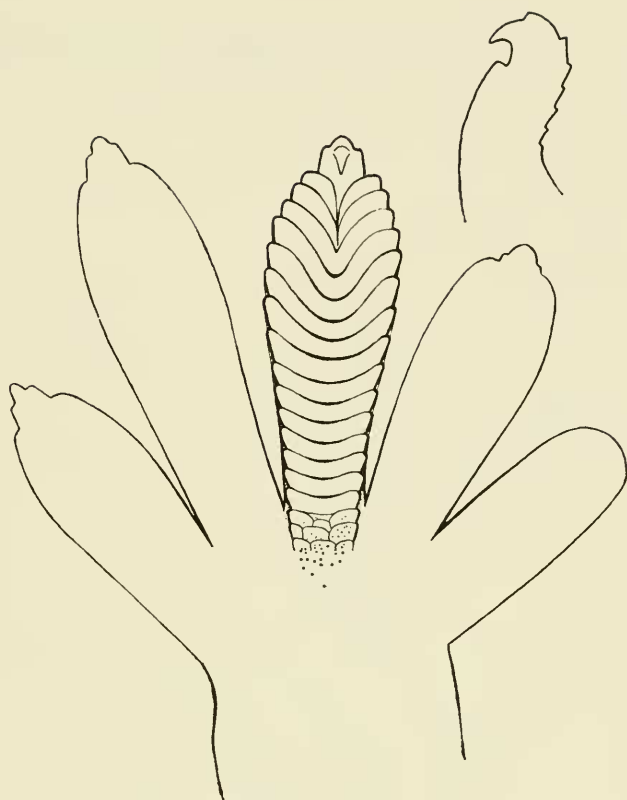


Figure 1. *Pseudogekko compressicorpus*.

all known species in these last four genera and consideration of other characters than digital structure will be necessary before the generic limits and relationships can be clearly understood.

This is borne out by the difficulties which have at times arisen in assigning certain species to one or the other of these genera. Thus Boulenger (1885a, p. 162) included in *Lepidodactylus* three species later placed in *Hemiphyllodactylus* by Stejneger (1899, pp. 788, 799) and Smith (1933, p. 15). Again, Boulenger (1885b, p. 473), in describing *Gekko pumilus*, noted that the species was very like a *Lepidodactylus* in many characters, being placed in *Gekko* on the basis of the undivided lamellae. Examination of one specimen of *pumilus* (MCZ 69216) suggests that

it may be more closely related to *Luperosaurus* with reduced webbing and skin folds. Taylor (1915, p. 96), on first describing *compressicorpus*, placed it in the genus *Luperosaurus* but later (1922) separated this species from *Luperosaurus* and erected

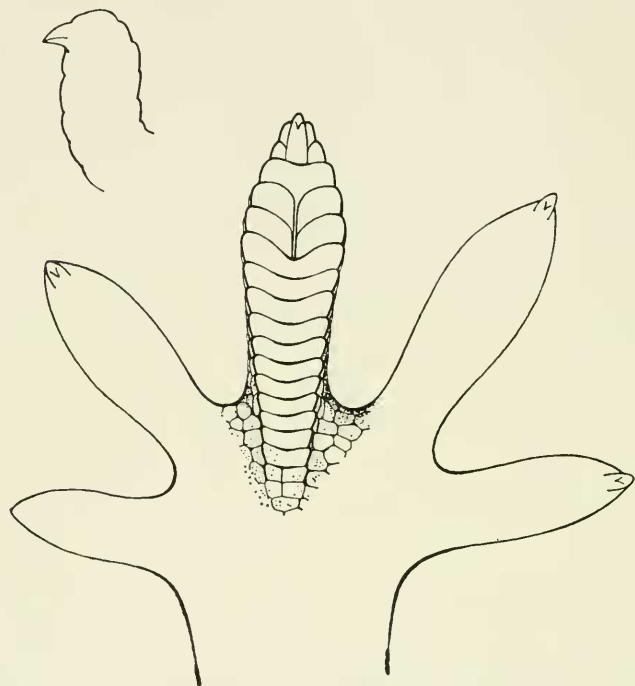


Figure 2. *Pseudogekko shebae*.

the genus *Pseudogekko* for it. Again, an examination of the paratype of *Luperosaurus macgregori* Stejneger (Stanford University No. 6263, a hatchling measuring 23.5 mm from snout to vent) reveals that the sub-terminal lamellae are divided in the midline, and hence that this specimen should be referred to *Lepidodactylus* species as that genus is presently understood. (The assignment of *macgregori* to the genus *Luperosaurus* is thus placed in doubt and the type should be re-examined in this light.)

DISTINGUISHING CHARACTERS OF
PSEUDOGEEKKO SHEBAE AND
LEPIDODACTYLUS GUPPYI

Pseudogekko would appear to be distinguished from *Lepidodactylus* primarily on the basis of the more slender habitus and the more narrowly but uniformly dilated digits. Both *P. shebae* and *P. compressicorpus* are more slender in body and exhibit less broadly dilated digits (Fig. 1) than most of the several species of *Lepidodactylus* which I have had the opportunity of examining. If the ratio "breadth of head: snout-vent length" is used as a measure of habitus, the range for *Pseudogekko shebae* and *Pseudogekko compressicorpus*, based on the few adult specimens available, is from about 14-16 per cent; for five species of *Lepidodactylus* (*christiana*, *lugubris*, *aureolineatus*, *planicaudus* and *guppyi*) the range is 18-21 per cent.

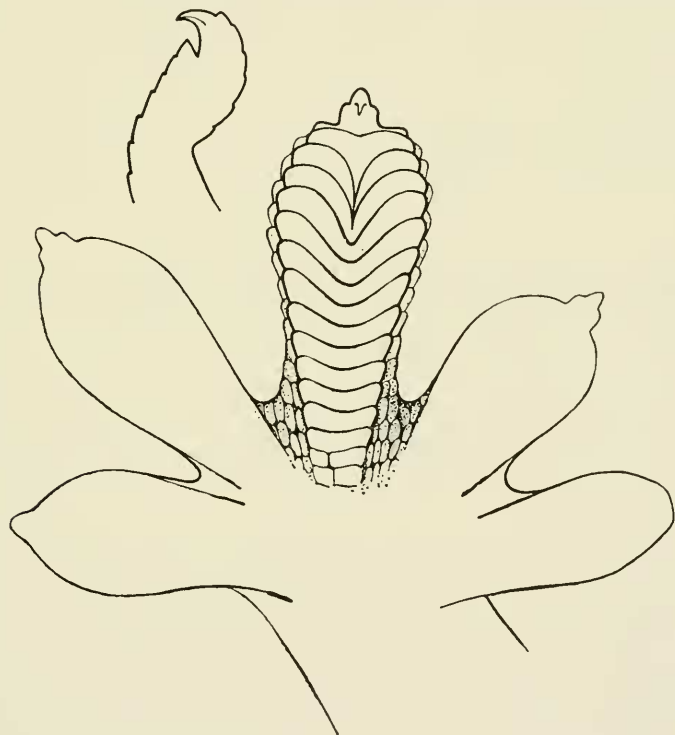


Figure 3. *Lepidodactylus guppyi*.

(*Lepidodactylus brevipes* from the Philippines is an exception with respect to both of these characters and is closer to *Pseudogekko*. A careful study of this species will probably show that it should be placed with *P. shebae* and *compressicarpus*.)

The differences in foot structure of *Lepidodactylus guppyi* and *Pseudogekko compressicarpus* are illustrated in Figures 1 and 3. The condition of the terminal lamella — divided or entire — is not a generic character, since it is divided in *Pseudogekko compressicarpus* and *Lepidodactylus lugubris* and entire in *Pseudogekko shebae* and *Lepidodactylus guppyi*.

The number of preanal and femoral pores in males and the size of the head scales, as illustrated by the number of scales between the eyes in the mid-orbital plane, will help to distinguish *Pseudogekko shebae* from *Lepidodactylus guppyi* (Table 1).

In addition to *L. guppyi* and *P. shebae*, members of the *lugubris-woodfordi* species complex occur also in the Solomon Islands. Individuals of this species or group of species, however, are readily distinguished from *Lepidodactylus guppyi* and *Pseudogekko shebae* on the basis of the divided terminal lamella on all toes but the first. This scale is undivided on all toes on specimens of *L. guppyi* and *P. shebae*.

SUMMARY

The Oriental-Pacific geckonid lizards of the genera *Gekko*, *Lepidodactylus*, *Luperosaurus* and *Pseudogekko* represent categories which probably include closely related groups of species but, as they are presently understood, are not sharply and clearly delimited from each other. Two additional genera, *Hemiphyllodactylus* and *Pseudothecadactylus*, although they probably represent lines of evolution distinct for a longer period of time, have by some authors been regarded as very closely related to these four genera.

Superficial resemblances between species and the lack of sharp lines of demarcation between the genera not infrequently have made difficult the proper generic assignment of some of the species and even the determination of the species to which isolated individuals belong. A case in point is the identification of specimens of *Pseudogekko shebae* and *Lepidodactylus guppyi*, both known from the Solomon Islands. Their distinguishing characteristics and present generic assignment have been briefly discussed in the present paper.

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Table 1

Frequency of lamellar, pore and certain body-scale counts in the available samples of *Pseudogekko shebae* and *Lepidodactylus guppyi*.

| | Third-toe lamellae (hind limb) | | Prenal and femoral pores | | Number of scales across the head at mid-orbital plane | | Snout-vent length of mature males (in mm) |
|-----------------------|-----------------------------------|---|-----------------------------|---|--|---|---|
| | No. Freq. | | No. Freq. | | No. Freq. | | |
| <i>Pseudogekko</i> | | | | | | | |
| <i>shebae</i> | | | | | | | |
| BYU 7002 | 11 | 1 | 32 | 1 | 22-23 | 1 | 36.2 N=1 |
| <i>Lepidodactylus</i> | | | | | | | |
| <i>guppyi</i> | | | | | | | |
| MCZ 49224, | 11 | 1 | 35 | 1 | 32 | 3 | 44.4-51.0 N=6 |
| 49494-95, | 12 | 1 | 38 | 1 | 33 | 1 | |
| 64152,65862, | 13 | 4 | 40 | 3 | 34 | 1 | |
| 67122,67124, | 14 | 4 | 41 | 1 | 35 | 2 | |
| 74517-19 | 15 | 1 | 42 | 2 | 36 | 1 | |
| | | | | | 38 | 1 | |